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EDITED BY DR. A. J. GROUT, PLYMOUTH, N. H.,
To whom all correspondence regarding the mosses should be addressed.

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HEATER FOR GLYCERINE JELLY SLIDES.

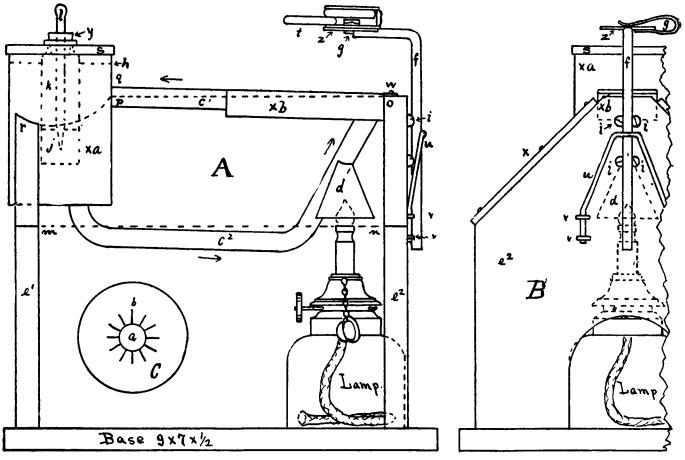
BY J. FRANKLIN COLLINS.

A FEW years ago while making glycerine jelly mounts by one of the old, laborious methods (one which is still in use), it occurred to me that there ought to be some more convenient method devised. After some experimenting, an apparatus was constructed which seemed to answer the requirements of economy and convenience. I have now been using it about three years and find it a great improvement over the old method. Recently Dr. G. G. Kennedy had one constructed with some slight modifications. After it was completed I used it several times and found it did the work as well, in every respect, as mine, and had the advantage of being simpler in construction.

The accompanying illustration and description embody the better features of both heaters, though following the lines of Dr. Kennedy's more closely than of mine. The figures are one-fourth natural size, so that any dimensions not specially stated can be ascertained by measuring the drawing and multiplying by 4.

A is a side view with the hand-rests removed; *B* shows a portion of one end (the lamp end), with hand-rest (*x*) in place and hand lens (*t*) removed, *C* (inserted within the contour of *A* in order to economize space) is a plan of the cover *s* shown in *A* and *B*. The base and supports (e,[1] e^2), as well as the hand-rests (*x*), are of white-wood; all other parts are of brass or copper, except *f*.

The circular tank *xa* is connected with *xb* by the two 3/8 inch pipes c^1 and c^2. *xb* is a rectangular box about 3¼ × 1¼ × ½, on the flat top of which the blank slide is placed to heat. This flat



top extends back a short distance so as to allow a small tack (*w*) to fasten it to e^2 at *o*. The top of the other support (e^1) is cut to fit closely about the tank. The broken lines *m-n* and *r-p-w* indicate the position of hand-rests (*x*), which are tacked to the oblique portions of the supports, and cut to fit about tank. The line *w-q* is slightly slanted to facilitate the escape of any bubbles generated in *xb*. On c^2 a flame shield (*d*), with a small vent at top, is fastened. The supports (*e*) can be lengthened or shortened at bottom if the flame does not occupy about the relative position indicated in fig. *A*. The lamp should be (preferably) one with a rack adjustment for wick, and the wick about 3/16 of an inch in diameter.

A 3/16 steel rod (*f*) is bent near top and a flat place filed at end and a small circular plate (*z*) soldered thereto. To the under right hand side of this a thin, flat brass spring (*g*) is riveted or soldered. By this arrangement any hand lens can be held in position for examination of sections on slide beneath it, as shown in fig. *A* (*t*). A thin white paper under the slide will help to better distinguish objects. The focus of lens is adjusted by sliding the rod *f* between the four round-headed screws (*i*) which guide it, and the brass wire spring (*u*) which holds it firmly in place. The spring *u* should be less than twice the thickness figured, and firmly fastened with four staples (*v*).

In fig. *C* the circle *a* is cut out to fit closely about the narrowest part of the neck of the homeopathic vial (*k*) containing the glycerine jelly (*j*). The radiating lines *a-b*, etc., are cut with a fret saw and the metal portions between them bent out (one at a time) until *a* is large enough to allow the top of the vial to be thrust through.

The metal is then bent back and the bottle is held as shown in fig. *A*.

To place jelly on slide, remove the glass rod (*l*) and cork (*y*) together, and touch end of rod to the warm slide on *xb*. If more jelly is required, repeat.

To prepare for use, pour into *xa* sufficient hot water to raise the level to *h*, when vial *k* is in position, and place lamp with *small flame* in position. As soon as jelly is fluid it is ready for use and will remain so as long as the water level is kept above the tube c^1, and the lamp is kept burning. The circulation of water, which should never *boil*, is indicated by the arrows.

THE DICRANUMS.—II.

It is hoped that the following purely artificial key may prove of value to beginners:

1—Capsule cernuous, more or less arcuate. . . 2
Capsule erect, symmetric. 14
2—Upper leaf cells longer than broad, porose. . 3
" " " not porose, nearly as broad as long. . . . . 5.
3—Capsules clustered, leaves strongly transversely undulate, silky. . . . . *undulatum.*
Capsules solitary. . . . . 4.
4—Leaves transversely undulate when moist, slightly or not at all secund; costa without lamellæ at back. . . . . *Bonjeani.*
Leaves not at all undulate, secund, with strongly serrate lamellæ at back. . . . *scoparium.*
5—Leaves strongly papillose at back, little or not at all secund. . . . . *spurium.*
Leaves not noticeably papillose. . . . . 6.
6—Capsules clustered. . . . . *Drummondii.*
Capsules solitary (rarely two together in *Mühlenbeckii*). 7
7—Costa not reaching apex. . . . . *Bergeri.*
Costa percurrent or excurrent. 8